



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/623,533	09/05/2000	Dominique P. Bridon	REDC-1510USA	3921
26161	7590	07/16/2007		
FISH & RICHARDSON PC P.O. BOX 1022 MINNEAPOLIS, MN 55440-1022			EXAMINER PARKIN, JEFFREY S	
			ART UNIT 1648	PAPER NUMBER
			MAIL DATE 07/16/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

09/623,533

Applicant(s)

BRIDON ET AL.

Examiner

Jeffrey S. Parkin, Ph.D.

Art Unit

1648

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 April 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4,6,19,21,31,36,38,39 and 59-88 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 4, 6, 19, 31, 31, 36, 38, 39, and 59-88 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

Serial No.: 09/623,533
Applicants: Bridon, D.P., et al.

Docket No.: REDC-151USA
Filing Date: 09/05/00

Detailed Office Action

Status of the Claims

Acknowledgement is hereby made of receipt and entry of the communication filed 19 April, 2007. Claims 1, 4, 6, 19, 21, 31, 36, 38, 39, and 59-88 are pending in the instant application.

35 U.S.C. § 103(a)

The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. § 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 C.F.R. § 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. § 103(c) and potential 35

U.S.C. § 102(f) or (g) prior art under 35 U.S.C. § 103(a).

Claims 1, 4, 6, 19, 21, 31, 36, 38, 39, and 59-88 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Bolognesi et al. (1995), hereinafter referred to as the '944 patent, Barney et al. (2001)¹, hereinafter referred to as the '782 patent, in view of Sivam et al. (1992), hereinafter referred to as the '944 patent, and Narazaki et al. (1996). The claims are directed toward anti-HIV peptide albumin conjugates, and compositions comprising said conjugates. The peptides encompassed in the claimed subject matter are SEQ ID NOS.: 1, 3-5, 117-119, and 534-541. These polypeptides correspond to the HIV-1 fusion inhibitor DP-178 (SEQ ID NO.: 1). Amino acid sequences 3-5 are DP-178 analogues, amino acid sequences 117-119 correspond to DP-178 amino-terminal truncations, and sequences 534-541 correspond to DP-178 variants with truncations and conservative amino acid substitutions. The claims further stipulate that the conjugates are linked via a maleimide-containing group and covalently bind to cysteine 34 (Cys³⁴) in a ratio of 1:1.

The '933 patent and the '782 patent both disclose the claimed polypeptides, or obvious variants thereof. The claimed polypeptides, or obvious variants thereof, are all present in the prior art. For instance, SEQ ID NOS.: 1 and 5 are disclosed in the '933 patent (see Figure 13A and SEQ ID NO.: 5) and SEQ ID NOS.: 3, 4, 117-119, and 534-541 (see SEQ ID NOS.: 1357, 1515, 638, 800, 62, 15, and 642) are set forth in the '782 application. These polypeptides are efficient at inhibiting HIV-1 virion-cell fusion. These teachings do not disclose HSA conjugates employing a maleimide linkage at Cys³⁴.

The '944 patent provides conjugates comprising an active component and human serum albumin (HSA). These conjugates are prepared using a maleimide linkage (e.g., see col. 5, lines 13-36;

col. 6, lines 46-63; col. 7, lines 34-59) and form a 1:1 ratio of protein:albumin. This teaching notes that protein-albumin conjugates have several favorable properties such as improved half-lives as compared to unconjugated peptides (see col. 1, lines 7-10; col. 3, lines 49-53). This teaching does not disclose HSA conjugates that are linked through Cys³⁴.

Narazaki and colleagues examined the binding interaction between human serum albumin (HSA) and drugs containing thiol groups and determined that this interaction takes place through Cys³⁴.

Therefore, it would have been *prima facie* obvious to one having ordinary skill in the art at the time the invention was made to prepare conjugates comprising DP-178 and derivatives thereof, as taught by Bolognesi et al. (1995) and Barney et al. (2001), and HSA, as provided by Sivam et al. (1992), since Sivam and colleagues teach that protein:HSA conjugates have improved properties such as increased half-lives and greater solubilities. Moreover, one of ordinary skill in the art would have been motivated to utilize Cys³⁴, as identified by Narazaki et al. (1996), since this amino acid is located on the surface of the protein and is readily available for conjugation. One of ordinary skill in the art would have also been motivated to use a maleimide linker, as disclosed by Sivam et al. (1992), since this represents a routine method for preparing thio compounds that readily react with Cys³⁴, as identified by Narazaki and colleagues. Thus, both the motivation and a reasonable expectation of success were present in the prior art.

Response to Arguments

Applicants traverse and submit that none of the references relied upon teach or suggest a DP-178 conjugate. It was further argued that the favorable properties identified by Sivam et al.

¹ The '782 patent has an effective filing date of 20 May, 1998.

(1992) would not motivate the skilled artisan to prepare the claimed conjugates. Applicants note that Shugars et al. (1996) suggest that coupling small antifusogenic peptides to large molecules may result in steric hindrance and reduced antiviral activity. These arguments are not compelling considering the state-of-the-art at the time of filing. The examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 U.S.P.Q.2d 1941 (Fed. Cir. 1992). However, the prior art clearly provides the requisite peptides of interest and teaches that conjugating said peptides through a maleimide intermediate increases the pharmacological profile of the peptide. Therefore, one of ordinary skill in the art would be sufficiently motivated to combine the references to arrive at the claimed invention. Applicants' representative is invited to contact the Examiner to discuss the rejection further.

Action Is Final

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 C.F.R. § 1.136(a). A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 C.F.R. § 1.136(a) will be calculated from the mailing date of the advisory

action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Correspondence

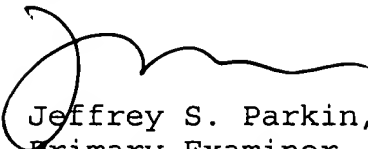
Any inquiry concerning this communication should be directed to Jeffrey S. Parkin, Ph.D., whose telephone number is (571) 272-0908. The examiner can normally be reached Monday through Thursday from 10:30 AM to 9:00 PM. A message may be left on the examiner's voice mail service. If attempts to reach the examiner are unsuccessful, the examiner's supervisor, Bruce R. Campell, Ph.D., can be reached at (571) 272-0974. Direct general status inquiries to the Technology Center 1600 receptionist at (571) 272-1600. Informal communications may be submitted to the Examiner's RightFAX account at (571) 273-0908.

Applicants are reminded that the United States Patent and Trademark Office (Office) requires most patent related correspondence to be: a) faxed to the Central FAX number (571-273-8300) (updated as of July 15, 2005), b) hand carried or delivered to the Customer Service Window (now located at the Randolph Building, 401 Dulany Street, Alexandria, VA 22314), c) mailed to the mailing address set forth in 37 C.F.R. § 1.1 (e.g., P.O. Box 1450, Alexandria, VA 22313-1450), or d) transmitted to the Office using the Office's Electronic Filing System. This notice replaces all prior Office notices specifying a specific fax number or hand carry address for certain patent related correspondence. For further information refer to the Updated Notice of Centralized Delivery and Facsimile Transmission Policy for Patent Related Correspondence, and Exceptions Thereto, 1292 Off. Gaz. Pat. Office 186 (March 29, 2005).

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Serial No.: 09/623,533
Applicants: Bridon, D.P., et al.

Respectfully,



Jeffrey S. Parkin, Ph.D.
Primary Examiner
Art Unit 1648

08 July, 2007